

**Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services**

STATEMENT OF BASIS

**Krotz Springs Refinery
Valero Refining Company – Louisiana
Krotz Springs, St. Landry Parish, Louisiana
Agency Interest Number: 3116
Activity Number: PER19960003
Proposed Permit Number: 2600-00003-V0**

I. APPLICANT

Company:

Valero Refining Company – Louisiana
P. O. Box 453
Krotz Springs, Louisiana 70750-0453

Facility:

Krotz Springs Refinery
Highway 105 S
Krotz Springs, St. Landry Parish, Louisiana
Approximate UTM coordinates: 620.3 km E and 3,377.6 km N in Zone 15

II. FACILITY AND CURRENT PERMIT STATUS

The Krotz Springs Refinery consists of a crude unit, a vacuum unit, a fluidized catalytic cracking (FCC) unit, a naphtha hydrotreater-reformer, a polymerization unit, an octenes/crude mineral spirits unit, a methyl ter-butyl ether (MTBE) unit, an isomerization unit, an ammonium thiosulfate (ATS) unit, a light ends recovery unit, and a gasoline desulfurization unit. Support facilities include steam boilers, docks, truck and railcar loading/unloading facilities, a wastewater treatment plant, and storage tanks.

Piping, boilers, pumps, dryers, tanks, and other equipment are utilized in the processes. Raw materials are received at the facility via barges, trucks, and pipelines. Finished products are shipped from the facility by pipelines, trucks, railcars, and barges.

The company has submitted timely applications for initial Part 70 permits for the facility, which continues to operate under the state permits listed.

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Permit No.	Unit or Source	Date Issued
2600-00003-05	Entire Facility	04/09/1996
2549	Complex I Cooling Tower	06/22/1998
2505 (M-1)	Fluid Catalytic Cracking Unit	01/07/2002
2890	Gasoline Hydrotreater Unit	10/20/2004

In addition, PSD Permits PSD-LA-140 (issued 8/7/1979), PSD-LA-278a (issued 2/13/1980), PSD-LA-286aM-1 (issued 4/5/1982), PSD-LA-232 (issued 1/8/1980), PSD-LA-373 (issued 4/5/1982), and PSD-LA-504 (issued 1/3/1984) were also issued to the facility.

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application dated October 1, 1996 was submitted requesting a Part 70 operating permit for the Krotz Springs Refinery. The application was subsequently revised in July 2002 and November 2005. Additional information dated November 30, 2005 and January 12, February 7, March 7, and April 21, 2006 was also submitted.

Project

With this initial Part 70 operating permit, Valero proposes to construct and operate a new light-ends recovery unit (LRU) – a 3-MM scfd cryogenic off-gas processing facility. The LRU will consist of inlet gas compression and aftercooling, dehydration, sulfur treating, cryogenic liquids recovery, and a de-ethanizer tower. The unit will process gas streams from the Isom Unit, Reformer Stabilizer, Crude Stabilizer, and Reformer Amine Tower. Overheads from the de-ethanizer tower and off-gas from the refrigeration will be routed to the facility fuel gas system. Deethanizer tower bottoms will be Proxim grade liquid petroleum gas (LPG). Estimated emission increases due to the project are 6.48 tons per year VOC and less than 0.01 ton per year CO.

Potential emissions for each source has been recalculated based on the newly available emission factors, process data, analytical data, and stack testing results.

Proposed Permit

Permit 2600-00003-V0 will be the initial Part 70 operating permit for the entire Krotz Springs Refinery.

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Permitted Air Emissions

Estimated emissions in tons per year are as follows:

Pollutant	Before	After	Change
PM ₁₀	102.38	196.26	+ 93.88
SO ₂	1,025.48	1,046.28	+ 20.80
NO _x	729.17	728.37	- 0.80
CO	434.88	637.47	+ 202.59
VOC	1,160.04	1,202.96	+ 42.92

The permitted emission rates (“After”) are estimated based on the newly available emission factors, process data, analytical data, and stack testing results. The estimated emission changes shown above are mainly due to the emission factor changes. The changes do not affect the determinations of the existing PSD permits and do not trigger new PSD review.

IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

Streamlined Equipment Leak Monitoring Program

It is required that the Krotz Springs Refinery comply with the following streamlined equipment leak monitoring programs in accordance with the Louisiana Fugitive Emission Program Consolidation Guidelines.

Unit or Plant Site	Program Being Streamlined	Stream Applicability	Overall Most Stringent Program
MTBE-53 and Isom-54	LAC 33:III.2121	≥ 10% VOC by volume	40 CFR 60 Subpart GGG
	40 CFR 60 Subpart GGG	≥ 10% VOC by weight	
	40 CFR 63 Subpart CC, Refinery MACT NSPS Option	≥ 5% VOHAP by weight	
CMS/Octenes-55, Poly-51, and CVS (Closed Vent System)	LAC 33:III.2121	≥ 10% VOC by volume	40 CFR 60 Subpart GGG
	40 CFR 60 Subpart GGG	≥ 10% VOC by weight	

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Unit or Plant Site	Program Being Streamlined	Stream Applicability	Overall Most Stringent Program
Tank Farm-01, Truck Rack-04A, Tank Farm-10, Crude Unit-15, Tank Farm-16, Tank Farm-17, Reformer-30, FCCU-42, Gas Con-43, Tank Farm-56, Crude Rack-57, and Docks 1, 3, 4, and 5	LAC 33:III.2121	≥ 10% VOC by volume	LAC 33:III.Chapter 51 – Louisiana MACT Determination for Refineries dated July 26, 1994
	LAC 33:III.Chapter 51	≥ 5% Class I & II VOTAP by weight	
DEA-31, LPG Rack-46, LPG Bullets-49, Crude Flare-34, ATS-47, FCC Utilities-50, FCC Flare-52, Rail Rack-58	LAC 33:III.2121	≥ 10% VOC by volume	LAC 33:III.2121

MACT Requirements

Many emission sources in the Krotz Springs Refinery are subject to LAC 33:III.5109.A and 40 CFR 63, Subparts Y, CC, UUU, and DDDDD. Detailed requirements are given in the Specific Requirements section of the permit.

Air Quality Analysis

Air quality analysis on PM₁₀ emissions was performed with ISCST3 (SCREEN). The calculated annual average and 24-hour average maximum ground level concentrations are 20 µg/m³ and 115.53 20 µg/m³, respectively. The modeling results indicate that the Krotz Springs Refinery is in compliance with the National Ambient Air Quality Standard (NAAQS).

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

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Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

V. PERMIT SHIELD

No permit shield is granted.

VI. PERIODIC MONITORING

No additional periodic monitoring requirement is required.

VII. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Sulfide (H₂S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C (“Prevention of Significant Deterioration of Air Quality”) and D (“Nonattainment New Source Review”).

Nitrogen Oxides (NO_x) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH₄), Ethane (C₂H₆), Carbon Disulfide (CS₂)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per

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year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM₁₀ – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO₂) – An oxide of sulfur.

Sulfuric Acid (H₂SO₄) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.